Understanding Intelligently Artificial Intelligence : a citizens' open formation

Frédéric Alexandre, Robert de Barretin, Jade Becker, Marie-Hélène Comte, Martine Courbin-Coulaud, Sonia Cruchon, Aurelie Lagarrigue, Bastien Masse, Sophie de Quatrebarbes, Julie Stein, et al.

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Topics : K-12 AI educational initiatives and projects, AI teaching concepts and materials, parental involvement in AI-literacy.

Fréderic Alexandre[1], Robert de Barretin[8], Jade Becker[7], Marie-Hélène Comte[2], Martine Courbin[2], Sonia Cruchon[3], Aurélie Lagarrigue[2], Bastien Masse[4], Sophie de Quatrebarbes[5], Julie Stein[6], Claude Terosier[7], and Thierry Viéville[1].

[1] Inria, Mnémosyne team, https://team.inria.fr/mnemosyne
[2] Inria, Learning Lab https://learninglab.inria.fr and Science Outreach Department,
[3] 4 minutes 34 https://www.4minutes34.com
[4] Université de Nantes https://www.univ-nantes.fr
[5] S24B l'interactive https://www.s24b.com
[6] La Ligue de l'enseignement https://laligue.org
[7] Magic-Makers https://www.magicmakers.fr
[8] DataBingo https://data.bingo/
mailto: thierry.vieville@inria.fr

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1. Context and Objectives

Our whole society is and will be deeply impacted by digital science and this takes a new qualitative and quantitative turn with what is named artificial intelligence (AI). We *must* allow everyone to master, thus understand how all this works. This means computational thinking discovery and machine learning initiation. Directly inspired by the Finnish initiative to train 1% of its population on these subjects [1] and after our success in providing a hybrid formation on computational thinking for teachers and citizens not familiar with computer science [2] where more 45000 persons have been reached, yielding a satisfaction level higher than 90%, we have built and now operate a citizen training in AI in the broad sense, intended to a large public beyond the school domain, with the goal of giving rise to an *ubiquitary citizen university in digital science and culture* [3].

2. Method and Production

We produced a *hybrid*, *performative* and *contaminating* training: Freely accessible online training course with free of charge attestation of attendance; online exchange forum, to share and help each other, when training on these subjects; online and in real life hangouts to extend this sharing and serve local projects on these subjects, all content items being also reusable to derive and build other ressources. Hybrid : Because online ressources are designed to derive in situ activities. Performative : Because students are taught to be their own teacher, while helping each other. Performative, in the sense that an adult benefits from this training and then in his family or in his business, association, structure shares what he has discovered with his or her children or the seniors, or the other way round. Part of the training exercises is to be able to transmit what has been learned.

With respect to other offers in the field [1], the contents are less technical (e.g., machine learning programming in Python is proposed only as an extension), but not only a verbal introduction, while effective activities, including unplugged activities (i.e., without a computer using low-tech everyday tools), are proposed to really understand how-it-works. We not only talk about AI, we make people manipulate.

Contents allow us to gain a first understanding of what AI means and what it is not, understand the principles of machine learning and the crucial role played by data, taking into account the societal issues of AI. Learners are invited to question themself, beyond preconceived ideas, and really understand the ground of AI; perform activities and manipulate AI programs to build their own vision; acquire a minimal scientific and technical culture (concepts, history of humans and ideas). As an outcome they are able to discuss the subject, question applications, choose some framework to contribute to the development (or not) of AI applications.

3. First results and Analysis

After one month of activity [results will be updated in the final version], more than 10000 persons joined (35% female, 64% male, 1% not binary) with about 300 persons done yet, more than 1000 persons enjoying at least a part of this modular formation. They are mainly active (55% on activity, 15% retired, 11% students, 8% job researcher), mostly with university level (78% at least bachelors in any field, 10% PhD), but rather beginners in the field (57% full beginners, 40% intermediate non expert), working 10 to 20 hours in average (about 50% of the persons spend from 2 up to 5 hours per week, during about 3 weeks, while 25% spend less and 25% more), and above 90% of person having their expectation satisfied (40% fully satisfied). Detailed results [will be] available as supplementary material. On the forum, more than 1500 persons have been or are active while more than 3500 are reading the about 200 discussions, more than half being on the course contents (e.g., strong versus weak AI, symbolic versus numeric methods, societal issues, …). More than 10 online hangouts of 30 to 200 persons have been already organized by one of the 70 partners of the Class´Code project [4], during this covid-19 confinement.

Qualitatively, beyond very nice and encouraging positive feedbacks, through the constant evaluation of the course by the users, we are invited to take several improvements into account : (i) extend the existing formation with more operational tutorials, (ii) manage some technical weakness because we integrate state of the art recent external resources, some still to be consolidated, (iii) complete the existing contents to better help the learner progression. And we will, since this is a long term open course (probably more than 2 years). A few persons did not find what they expected, either because they are not interested in redoing activities with young person (on any age ;)) to better understand or because they were looking for professional formation.

On our side, we are really delighted to participate on these researcher-citizen exchanges and shares, with very interesting questions, sometimes on crucial subjects, always moderated (no troll, yet ;)). We are less happy about the fact we have mainly reached rather highly educated persons, while we target popularisation. When a person joins, the content is always considered as accessible, and the hard point is to join. We hope that in real life hangouts and also community approaches will help, and work on this aspect [5,6].

4. Conclusion and Perspectives

We are proposing a “maker” approach to AI popularization between technical formation allowing to use AI at work, such as [1], and more superficial presentation of AI only in “words”.

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